

ASBS

Australasian Systematic Botany Society



Newsletter

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AUSTRALASIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED

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Christopher Quinn
Chair: Mike Bayly, Vice President

Grant application closing dates:

Hansjörg Eichler Research Fund:
on March 14th and September 14th each year.
Australian Conservation Taxonomy Award:
on September 14th 2014, then in May 2015, 2016.

Cover image: *Ternstroemia monostigma* W.R.Barker (Pentaptychaceae), a New Guinea endemic. Male and female flowers and parts (minus petals), fruit, seed in section. Artist Taikika Iwagu. With permission of the National Herbarium of Papua New Guinea.

Publication dates of previous issue

Australas. Syst. Bot. Soc. Newslett. 158 (March 2014):
ASBS Web site: 7th May 2014; Printed version: 12th May 2014

From the President

A time for reflection

The tragic air disaster over Ukraine has directly affected some of our membership, with the tragic loss of close relatives. Our sympathies and thoughts are with you and your circle of family and friends. Your grief must be the more intense for the sheer wantonness and randomness of the act.

I have also extended sympathies of our Society through Brendan Lepschi to family, friends and colleagues with the deaths of long-standing botanists Lyn Craven and John Wrigley.

Palmerston North 2014 – time for your Early Bird registration

This year's conference at Massey University is fast coming upon us. Jen Tate has provided us an update with a call for papers and registration (see p. 3).

The 1st September deadline for Early Bird registrations is nigh.

All who attend our conferences, the last in Sydney being no exception, attest to the stimulating and friendly atmosphere. Let's get behind Jen and her team. Share a week of systematics amongst friends.

Peter Weston, 2014 ASBS Burbidge Medallist
Council is pleased to announce that Peter Weston will be awarded the Nancy Burbidge Medal at this year's ASBS conference. His long and outstanding contribution of research and scholarship in plant systematics will be widely appreciated by members. We look forward to his Nancy Burbidge Lecture: *Problems and progress in plant systematics since Nancy Burbidge*

Budgets, science strategy and valuing systematics

We are not alone in seeing research and services in plant, algal and fungal systematics increasingly poorly and unevenly resourced. In recent times Governments have come to power having promised cuts and savings; now, inevitably and increasingly, the drive to balance budgets has encroached heavily on experienced human assets and valuable services. In South Australia years of budget shrinkage in the Environment department have been topped by huge overall cuts for the next two years. So

it is with relief that after the massive budget hit to the Commonwealth Public Service last May, ABRIS appears to have survived with its programmes preserved though a cut in real terms. Hopefully the Australian National Herbarium's important role in plant systematics will be preserved in the face of serious cuts to CSIRO.

Since taking up his role as Australia's Chief Scientist, Professor Ian Chubb, has called for heavy investment in science, technology, engineering and mathematics for the nation's future sustainability. Just in the last few days the Chief Scientist continued his call for a National Science Strategy (Web refs. 1, 2)

Australia is now the only OECD country that does not have a contemporary national science and technology, or innovation strategy. ... The United Kingdom, the EU, Canada, the United States, China, South Korea, and many, many other countries around the globe, have prioritised science funding as an important foundation for future sustained growth. ...

Our science investment and policies are too heavily dependent on so-called 'terminating program' grants, funding offsets and sporadic commitments to infrastructure. And worse, they have suffered from a lack of coordination. As each agency, department or university independently makes its necessary budget adjustments, our national science profile is what's left over. And it is compounded by the study choices of undergraduate students, given the numerical dominance of university researchers in our profile. What is important may not be popular.

We should ensure the Chief Scientist is aware of the fundamental importance of biosystematics in his promotion of science policy. But with so many areas of science and technology being caught up in decisions of Governments over recent years we must make our case effectively

This highlights the imperative of our White Paper project, for which we are making a Call to Arms. (see p. 6). We appeal for a big response from members, for the project's cloth will need to be cut according to the level of participation. Our case for the benefits of taxonomy and systematics can only be enhanced if we can

combat inevitable alternative views with hard evidence. As an example, there is a strong case to be built around the statistics presented in this issue's article on the Australia's Virtual Herbarium (p. 7). In some jurisdictions reductions have been so great that getting back to where we were a decade ago is not guaranteed. For others, particularly those activities and agencies under-resourced in the past, we have an opportunity to build a case for being valued more highly.

Web ref. 1. www.chiefscientist.gov.au/wp-content/uploads/Jack-Beale-Lecture_130814.pdf

Web ref. 2. www.theaustralian.com.au/higher-education/chubb-says-stop-tinkering-with-science/story-e6frgcjx-1227023878804

Canberra 2015! ... and conferences beyond

The Canberra Chapter has announced in this issue its offer to host our annual conference in 2015. Plans are already advanced. Council greatly appreciates the immediate enthusiasm to the suggestion to host this meeting. The Chapter has a rich tradition in ASBS affairs. Thank you Canberra!

Please take a look at the summary of the sequence of annual conferences hosted at our various centres (p. 5). It's been a while since a number of Chapters have taken their turn. Council would appreciate your talking with your colleagues on hosting a conference in the near future.

ACT Awards in place for next three years

Council has just signed a new agreement with the Nature Conservancy to extend our most lucrative research grant, the Australian

Conservation Taxonomy Award, for a further three years. In the process we have negotiated clearer criteria for selection of the award. The Society has also agreed to help administer the finances of an expansion by the Conservancy to cover equivalent zoological awards selected by the Society of Australian Systematic Biologists. Unfortunately, our awards are not available for New Zealand research. Thanks go to Mike Bayly for a big effort in leading the negotiations (his report is on p. 4). And our warm appreciation to the Nature Conservancy for our valued relationship in improving fundamental knowledge for conserving our Australian environment and its biota.

Helen Thompson ends her book sales role

Helen Thompson recently resigned her role as Book Sales Officer. This comes at a time when ABRS has moved its offices up the hill to the Botanic Gardens office complex. Our ASBS book and newsletter stocks have moved with them.

ABRS has held stocks of our Society's publications from at least September 1989 (*ASBS Nsltr* 60), with staff members voluntarily managing them. Helen appears to have been the first Book Sales Officer, a position which she rescinded in December 1993 when Katy Mallett took over. Helen resumed the post in late 2004 when Katy withdrew (*ASBS Nsltr* 121, p. 2).

Back in the 1990s ASBS sold merchandise produced by a vigorous Canberra Chapter. Jim Croft's mum made blue, green and brown ASBS scarves that bore the ABRS platypus

Australasian Systematic Botany Society Inc.

Nominations for membership of Council

In accordance with Section 13 of the Society's Rules, nominations are hereby called for membership of Council. Council consists of the following positions: President, Vice-President, Secretary, Treasurer and two (2) Councillors.

Nominations must be received by the Secretary, Frank Zich, Australian Tropical Herbarium, PO Box 6811, Cairns QLD 4870 (frank.zich@csiro.au) before 5 pm Wednesday 1st October.

Nomination forms can be obtained from the Secretary (frank.zich@csiro.au) or from the ASBS web site https://www.anbg.gov.au/asbs/council/2014-15_Council_Nominations_Web.pdf

Notes

- A member may be nominated simultaneously for any number of positions on Council but is ineligible to hold more than one position at one time.
- While under the Society's Rules there are limits to the number of consecutive years for each Council position, all incumbent Councillors are eligible for re-election, but one has indicated an intention to stand down.

logo (Helen donned the last one in stock, dusky green, in the recent move). Members around Australia drank from white mugs scattered with silhouetted yaccas. The designer windcheaters and T-shirts were amongst the most popular products. A few people still use these items: Bryan Simon regularly wears his windcheater to conferences, Laurie Haegi uses his mug at Herbarium teabreaks despite an ill-positioned chip on the rim. Helen tells us that:

Helen Hewson organised the design of the myriad of grass trees (Diana Boyer one of our local *Flora of Australia* artists) did the artwork. I bought a box of the mugs as they are so gorgeous (only problem is I am not a tea or coffee drinker!); however they are a status symbol for me when I have visitors and thrust these mugs into their hands

At this crafty stage of things Helen Hewson also went crazy crocheting mouse covers for people [sic] computer mice! We were obviously embracing the new wonders of the computer age. Unfortunately these little critters were not big sellers.

I remember boxing up the ASBS merchandise and setting up the stalls at ASBS conferences. And of course you had to be in an ASBS windcheater or t-shirt to make the grade!

Also you have got me reminiscing about the ASBS chapter meetings when Ian Telford was the catering convener and the canapes, green olives, fine nibbles and wine we had and the big roll up of people.

Alas.

Reminiscing again... the concept of someone sending in a cheque for a \$3.50 newsletter plus postage and the amount of work in getting the whole payment processed! Definitely a labour of love.

Early in 2013 Helen and her workmates worked long and hard in their own time to restore the depleted or incomplete stocks of the Newsletter (see issue 154, p. 2).

A big thank you, Helen. All the best for retirement in early 2015 and the runup to it.

Anna Monro has kindly offered to take on our book sales to add to her other responsibilities supporting the Society.

Nominations for Council

Council encourages all members to consider if they'd be attracted to a role on Council and to nominate if now is a good time.

Frank Zich on our current Council has decided not to nominate for a further term. Frank has played an invaluable role as Councillor in 2009–10, Treasurer in 2011–13, and now Secretary.

But please note that nominations are called for all positions irrespective of whether incumbents are re-nominating or not. Catered for in our Constitution, elections reflect an active and interested Society. Remember, you can nominate for more than one position – you'll of course only be able to fill one!

Bill Barker

The annual ASBS conference

**ASBS 2014 conference 24–28th November –
early-bird registrations and abstracts due now!**

Just three months until the annual conference and plans are in place for a great week. The registration and abstract submission portals are now live. Follow the 'Registration' link from the main conference page: www.massey.ac.nz/~jtate/ASBS2014NZ.htm.

Deadline for early bird registration and abstract submission. This is soon, 1st September – so best do it now!

We have three fantastic plenary speakers to start off each day of the conference: Dr Heidi Meudt (Te Papa), Dr Peter Weston (Royal Botanic Gardens Sydney, Nancy Burbidge

Medal recipient), and Dr Phil Novis (Landcare Research) and we are planning some other special sessions during the week.

An optional day field trip to the volcanic plateau will follow the conference on Friday (28th) and will be a great way to take in some botanizing on the North Island. Otherwise, you can partake in some local activities in/near Palmerston North, including the New Zealand Rugby Museum or the Tui Brewery.

Jen Tate, Massey University
www.massey.ac.nz/~jtate/index.htm
j.tate@massey.ac.nz; ASBS2014NZ@gmail.com

ASBS Inc. business

Australian Conservation Taxonomy Award – new round closes on September 14th

The Nature Conservancy, with support from the Thomas Foundation, has agreed to continue the Australian Conservation Taxonomy Award for the next three years. The award supports student research in systematics that contributes to biological conservation.

The award, which previously related to plant systematics, now has an extended scope. For each of the next three years there will be awards in both plant and animal systematics, with assessment of animal applications being assisted by the Society of Australian Systematic Biologists.

Both Botany and Zoology awards include \$5000 toward research costs. The Botany award also includes up to \$2000 to assist with attendance at two ASBS conferences.

Applicants must be postgraduate students at an Australian university and the proposed research must be done in Australia and relate to Australian taxa. Applicants for the Botany award must also be members of ASBS and those for the Zoology award must be members of SASB. The awards would best suit students in the first or second year of a PhD or in the early stages of a Masters degree.

Applications for the 2014 awards are due on September 14th and are to be submitted to the ASBS secretary by email. A revised application form will soon be available on the ASBS website.

Applications for awards in 2015 and 2016 will be due some time in May (dates to be announced).

Mike Bayly
Vice President

Eichler Research Fund – March and September 2014 rounds

In the March 2014 round we had eight applications. Grants were awarded to the

following students.

- Ben Anderson, University of Western Australia: Next-generation sequencing for multilocus species delimitation in the *Triodia basedowii* E.Pritz. species group. \$2,000.
- Melodina Fabillo, Queensland University of Technology, Systematics of *Tripogon* (Poaceae; Cloridoideae) using morphological and molecular data, with emphasis on the Australian taxa \$1,034.

A grant offer was also made to a third student but this was subsequently not taken up, as the student withdrew from their PhD program

Unsuccessful applicants were provided with feedback on their applications and we have encouraged them to resubmit in future rounds.

The next round of applications will close on Sept 14th 2014.

Mike Bayly

Canberra chapter hosting our 2015 annual conference

Work has commenced on planning for the 2015 ASBS annual conference, to be held in Canberra. Conference dates are 29th November to 4th December 2015. The organising committee is currently working on the program, but an indication of key dates at this stage is registration/welcome commencing on Sunday 29th, carrying over onto the Monday 30th November, with the main conference running from 30th November to 2nd December, with a workshop and conference fieldtrip on the 3rd and 4th December respectively.

The organising committee comprises:

- **Patron:** Andrew Young
- Jim Croft and Brendan Lepschi (**people who get the blame if we screw it up**)
- **Logistics and communications:** Chris Cargill, Jim Croft, Cath Reed, Anna Monro and Brendan Lepschi (convener)
- **Scientific programme:** Cecile Gueidan, Alexander Schmidt-Lebuhn (convener), Carlos Gonzalez-Orozco and Lydia Guja

Brendan Lepschi
on behalf of the Organising Committee

Spreading the load – hosting future ASBS conferences

In the table below¹ is a survey of the ASBS conferences held in each city. It will hopefully assist city and regional chapters in forward planning.

Having been involved in organisation of three of our four conferences, I was surprised at how long it has been since Adelaide's last turn.

There is clearly a need to take into account extra difficulties for regional and smaller centres. Council's current view is that perhaps a fair balance between our two countries could

be one New Zealand event for every 3–4 Australian; so the kiwis are already punching above their weight.

Bill Barker

Changed venue of the ASBS Annual General Meeting for 2014

There has been a change in venue cited in the recent email to members announcing the Annual General Meeting to be held in conjunction with our Annual Conference at Massey University.

The meeting will be held in the AgHort lecture block (not the Wharerata as first announced).

Frank Zich, Secretary

Table 1. ASBS annual conferences in different centres from the Society's inception in 1973; in a few cases the AGM was associated with a workshop. (ANZAAS, the Australian and New Zealand Association for the Advancement of Science; Aust., Australia)

From ASBS website at <https://www.anbg.gov.au/asbs/conferences.html>

State/ Country	Centre	Date of conference and co-organising group if any
SA	Adelaide	May 1980 with Ecological Soc. Aust. (ESA), Aust. Entomological Soc., Aust. Soc. Herpetologists; Sep 1997 with Soc. Aust. Systematic Biologists (SASB), Mycol Soc; Sep 2002 with Aust. Inst. Biology; Oct 2008
Qld	Brisbane	Aug 1986 with ESA; Nov 2005
Qld	Cairns/ Kuranda	Jul 1994; Nov 2006
ACT	Canberra	Jan 1975 within ANZAAS; May 1984 within ANZAAS; Feb 1985 with Australasian Pollination Ecologists Soc. (Thredbo); Feb 1986 with ABRS (Thredbo); Aug 1990 with Hennig Conf.; Sep 1995 workshop; Jul 2004 ?workshop
NT	Darwin	Sep 2007
Tas	Hobart	May 1976 within ANZAAS; Jan 1993 with Southern Connections, ESA
Vic	Mel- bourne	Aug 1977 within ANZAAS; May 1988; Oct 1996; Sep-Oct 2003; Jul 2011 within Int. Botanical Congress (IBC)
WA	Perth	1973 within ANZAAS; May 1983 within ANZAAS; Oct 1993; Dec 1999 with SASB; Sep 2012
NSW	Sydney	Jan 1979 within ANZAAS; Aug 1981 within IBC; Jun 1989; Sep 1998 with Monocots II; Jun 2000 workshop; Sep 2001 within Fl. Malesiana; Dec 2013 with SASB, etc.
NSW	Armidale	Dec 2009
NZ	Various centres	Wellington Aug 1991 with Am. Bot. Soc.; Auckland Nov 1991 "in NZ Bot.Soc."; Christchurch Nov 2010 with NZ Plant Radiation Netwk; Palmerston North Nov 2014
USA	Hawaii	Aug 1992 within Amer. Inst. Biol. Sci./Bot. Soc. Amer. conf.

¹ Please communicate any amendments or additions to the above table to our Secretary and Webmaster.

Current issues

Call for immediate expressions of interest in participating in the systematics White Paper project

After a long gestation and two successful planning meetings by an incipient Project Team, we have reached the implementation phase of our White Paper project and are expanding the Project Team to a full complement of participants.

As has been presented in a series of articles in the Newsletter and in discussion at the last annual ASBS conference (Barker et al. 2014), the aim is to present a case to decision makers in our different jurisdictions for the value of plant, algal and fungal systematics in science, the environment and our culture.

We invite all members of our broad community to participate. The White Paper is the prime vehicle for selling our science, but it is underpinned by a large fact-gathering and documentation venture to back our opinions with hard evidence.

Participants in compiling each section of the overall project documentaton may choose to develop content in whatever way works effectively and efficiently. The documentation and evidence will be assembled on the Web by way of a wiki (*Wikipedia* is built by its many authors in the same way). Working groups may be needed and further ad hoc invitations made to participate.

You may choose to:

- participate in building up the basis for the overarching White Paper;
- participate in compiling the Evidence Base, by choosing to work in one of ten activity areas (e.g. research, teaching, outreach, physical and knowledge infrastructures);
- develop within each activity area: a summary of what we do, how and by whom; aspirational goals; key indicators of of progress and performance to meet these goals; illustrative case studies; notable achievements; common misconceptions (addressing them); and visions for the future; together with interaction with an economic evaluation group to ensure data are in line with its needs;
- interact with participants in your location on an ad hoc basis. In some instances data

collation may be most effectively done to serve more than one activity area.

You may contribute in different ways:

- discussing, exchanging and refining ideas;
- writing up parts of the activity area (the wiki allows for inserting a germ of an idea, a framework, multiple authorship, editing);
- compiling data. Potentially a big exercise it will require careful early decisions on the key data and to avoid repeat visits to sources of data.

We do ask you to respond immediately by:

- registering interest by a brief email request to access the White Paper wiki. To do this contact Ainsley Calladine, our already invaluable wiki administrator, or Bill;
- completing the Doodle poll aimed at scheduling a calendar of monthly telephone meetings. (The invitation to this will be contained in the email response to your request for access to the White Paper wiki).

References

- Barker, B. K. Thiele & I. Breitwieser (2014).
Developing evidence-based white papers on
Australasian plant systematics *Austral. Syst. Bot. Soc. Nsltr* 157: 24-27. <https://www.anbg.gov.au/asbs/newsletter/pdf/13-dec-157.pdf>

Contacts for accessing and trouble-shooting the wiki (registering in project) and Doodle poll for meeting schedule

ainsley.calladine@gmail.com; bill.barker@sa.gov.au

Please don't hesitate to consult any of us if you've questions.

Bill Barker, Mike Bayly, Ilse Breitwieser,
Darren Crayn, Tim Entwisle,
Kevin Thiele & Michelle Waycott
for the White Paper Project Team

Australasian Systematic Botany Society Inc.

Annual Conference 2014

**Early Bird registrations and receipt of abstracts
Due 1st September**

Additional benefits for student members:
travel support and prizes.

Follow the 'Registration' link from the main
conference page
www.massey.ac.nz/~jtate/ASBS2014NZ.htm

Articles

Australia's Virtual Herbarium hits 5 million records

Niels Klazenga & Alison Vaughan
Royal Botanic Gardens Melbourne
and Herbarium Information Systems Committee (HISCOM)
avh@chah.org.au

Australia's Virtual Herbarium (AVH) last week hit a major milestone: 5 million records.

This milestone presents a good opportunity to provide an update on the ongoing development of AVH and highlight some of the ways in which AVH is contributing to science, conservation and education.

In November 2012 we launched the new web portal of AVH (<http://avh.chah.org.au/>), which is powered by the Atlas of Living Australia (ALA) and is firmly embedded in the ALA infrastructure. This new version of AVH was launched together with the new web portal of OZCAM (<http://ozcam.org.au/>) – the Online Zoological Collections of Australian Museums – highlighting the complementary nature of these resources, and acknowledging the great contribution that ALA has made to the botanical and zoological communities.

AVH and OZCAM records – OZCAM has almost 3.7 million records – are now among over 50 million records in the ALA's Biocache (<http://biocache.ala.org.au/>). What sets AVH and OZCAM records apart from other, mostly observational, records in the Biocache is that all AVH and OZCAM records are based on preserved specimens. This is important for users of our data, as it means that research results based on AVH and OZCAM data are verifiable and repeatable.

Spatial analysis and data validation tools

Through ALA, AVH data can be analysed using the tools in the Spatial Portal. Through the National Species Lists (NSL), taxon names provided with the specimen records are matched against nomenclators such as the Australian Plant Census (APC), so that taxon name searches will also return records that are recorded under a synonym.

Data uploaded into the Biocache undergoes a large number of quality and completeness tests. The results of these tests can be seen on the

record detail page of each record, and can be searched on. Users of AVH data can use this information to exclude records that fail certain tests from their analyses, while curators of herbarium data can use it to identify records that need to be corrected. ALA also provides for user-contributed annotations, so AVH users can report issues with individual records. Users can also subscribe to alerts for new records or new annotations on records. Herbarium curators can subscribe to alerts for new annotations, so that they know when a record has been annotated and can verify the specimen details.

Sensitive Data Service

All distribution records going into ALA, including AVH data, pass through ALA's Sensitive Data Service (SDS, <http://sds.ala.org.au/>) and is checked for the presence of sensitive information. The most important type of sensitive data in AVH is detailed locality information of rare and threatened taxa that may be further harmed by people knowing where to find them. Another type is detailed locality information of biological pests for which biosecurity agencies don't want people to know the exact whereabouts, because it might lead to their further spread or cause a panic reaction or stigmatisation. The lists of sensitive taxa and their sensitivity categories for each Australian state or territory are provided by the respective government conservation and biosecurity agencies. Location data of occurrences of sensitive taxa may be either generalised – for example to the nearest 10' – or withheld. To our knowledge, as far as AVH is concerned, data is withheld for only a single taxon, *Wollemia nobilis*.

The SDS represents a great improvement in the way that potentially sensitive data is handled within AVH. Where previously the latitude and longitude of all records were generalised to the nearest 0.1° for most users, now all users can access the full data for the vast majority

of records. Depending on the state or territory the records are from, only between 0 and 7 per cent of records have generalised latitudes and longitudes (Table 1). Users can still apply for access to the sensitive data as well.

Data usage

At their Annual General Meeting in PERTH in November 2011, the Council of Heads of Australasian Herbaria (CHAH) made two very important decisions. The first one was to give out AVH data under a Creative Commons–Attribution licence (CC BY, Web ref. 1), so that it is freely available to everyone, the only requirement being that the data is attributed to AVH. CHAH also agreed that herbaria should provide as many fields as possible to AVH. Although there is still a lot of work to be done on data completeness, all providers are now delivering more fields than before. For performance reasons it is not yet possible to download all these fields, but we are working on making more fields downloadable. Most AVH providers now provide daily updates, so the currency of AVH data has improved as well.

Although usage statistics from previous iterations of AVH are no longer available for comparison, anecdotal evidence and conversations with users via avh@chah.org.au suggest that the increase in availability and quality of AVH data has led to an increase in use. In the last 12 months, 180 million AVH records were downloaded in 35,000 individual downloads. The breakdown of download statistics indicates that approximately 70 per cent of the downloaded records were used for

scientific research, 25 per cent for conservation and biosecurity planning and management, and environmental impact assessment, and 2.5 per cent each for education and collection management. It is interesting to see that the number of downloads for conservation purposes is relatively low, but the number of records per download is on average much higher than for downloads for scientific research (Fig. 1). Even more interesting is that the number of records downloaded – as well as the number of downloads – for ecological research and ‘other scientific research’ dwarves the number of records downloaded for systematic research, which one would consider the more traditional use of herbarium data – or at least of herbarium specimens. A rather staggering amount – 2 billion records in 2700 downloads – of data was used for testing purposes. It should be noted that the AVH portal is not the only place where people can access AVH data and that the figures include downloads from the Biocache portal and Spatial Portal as well. Also, the downloads are only part of the picture, because AVH data can be accessed and analysed without being downloaded.

AVH data in research and conservation

AVH data has been put to use in some great research. Brent Mishler, together with colleagues at the Centre for Australian National Biodiversity Research and the University of New South Wales, used AVH data to test a suite of novel methods to assess phylogenetic diversity and endemism, to differentiate between neo- and palaeo-endemism, and to identify centres of endemism. Using Australian acacias as an example, their research identified biologically important areas in Western Australia, some of which are currently unprotected, and confirmed the significance of the World Heritage-listed Wet Tropics of Far North Queensland.

The results of this study were published in *Nature Communications* and the article is among the top 5 per cent of articles tracked by Altmetric. The article states that

Australia presents the best current opportunity for studying large-scale patterns of PD [Phylogenetic Diversity] and PE [Phylogenetic Endemism] in plants because of the nearly complete digitization of herbarium collections by Australia’s Virtual Herbarium.

Table 1. Total numbers of records and numbers and percentages of generalised records for Australian states and territories.

State / territory	Total number of records	Number of generalised records (%)
Western Australia	1116354	69844(6.26)
Queensland	997268	20903 (2.10)
South Australia	602679	3983 (0.66)
New South Wales	793444	3226 (0.41)
Victoria	424093	61 (0.01)
Tasmania	265801	29 (0.01)
Northern Territory	354394	27 (0.01)
Australian Capital Territory	68308	0 (0)

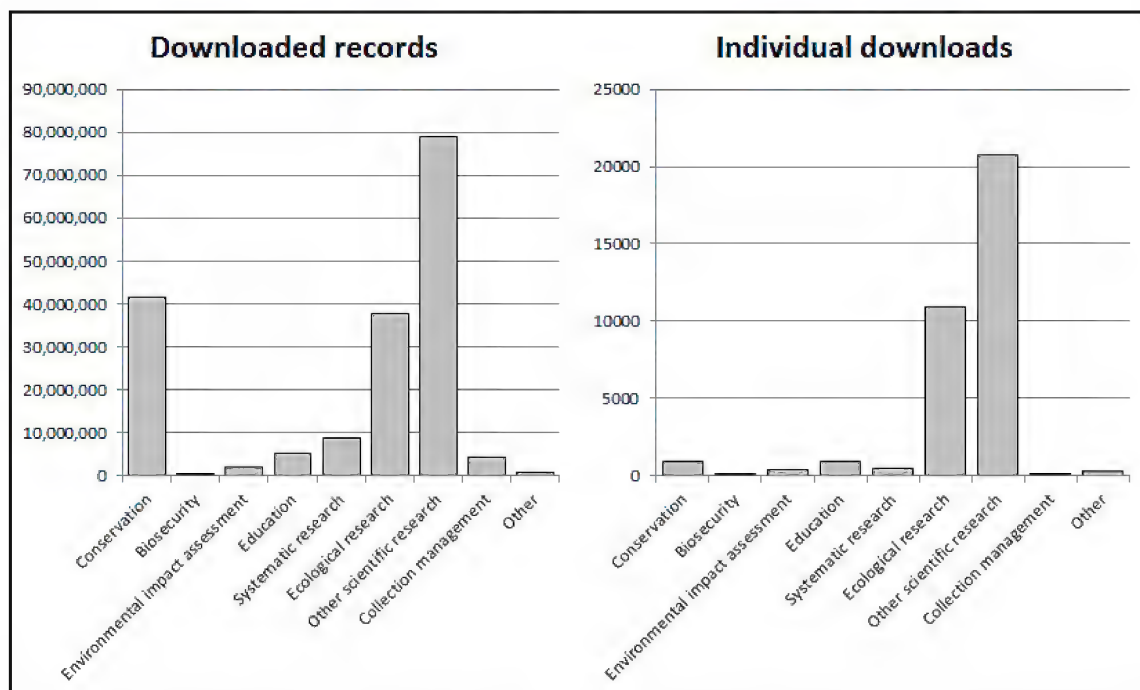


Fig. 1. Downloads of AVH data in the last 12 months – adapted from <http://collections.ala.org.au/public/showDataResource/dr376>, accessed 6 Aug 2014.

This month, Mishler furthermore tells us

These new landscape-scale methods are not feasible in the US until we have more herbarium data available.

Don Franklin and colleagues at the Research Institute for the Environment and Livelihoods, Charles Darwin University, used AVH data to evaluate the diversity, biogeography and conservation status of the eucalypts of northern Australia. Their work identified hot spots of high regional diversity and local endemism, and showed that the effects of land clearing have not been mitigated by conservation efforts. During this work, Don submitted annotations on many of the AVH records that were used.

AVH data has also been applied to conservation efforts in other parts of the world. Researchers in South Africa have used herbarium specimen data to model the distribution of potentially weedy Australian species – including eucalypts, casuarinas and acacias – outside Australia and to predict the likelihood that they will become invasive. David Richardson, Director of the Centre for Invasion Biology at Stellenbosch University, indicated that access to AVH data has been crucial for much of the work.

AVH in education

AVH data is now in an environment that lends itself well to education purposes. A recent ALA blog entry (Web ref.), describes a practical exercise around bioclimatic modelling techniques using ALA tools and data, developed for first-year physical geography classes at the School of Geography and Environmental Science at Monash University. The blog states:

Using the publicly available ALA data and tools empowers students to make their own scientifically informed decisions about biodiversity issues in Australia and encourages independent exploration and experimentation

and concludes:

The ALA is a tremendous educational resource, so let's all start talking about how best to use it. The possibilities are only limited by our imagination!

Two of the three tasks involved plants and, with AVH contributing over 45 per cent of the plant records in ALA, AVH data formed an important part of this teaching exercise. Now that AVH is part of a greater and more diverse set of primary biodiversity data and analytical tools, we expect that its use in education will increase.

A more inclusive AVH

In August last year we welcomed the first university herbarium, the N.C.W. Beadle Herbarium (NE) at the University of New England (UNE), as an AVH data provider. We are working towards getting more university herbaria contributing their collections data to AVH. This includes helping set up and maintain collections databases and overcoming resource impediments. Databasing herbarium specimen metadata is part of the botany curriculum at UNE, showing that herbarium databases can be a useful teaching tool. Getting university herbaria into AVH is not primarily about augmenting the data; it's also about broadening the base. Today's students might be tomorrow's collectors.

The Australian botanical community should be proud of what we as a community have achieved in AVH. While the herbaria are the custodians of the data – not to mention the specimens – good data management neither starts nor ends in the herbarium, and collectors, identifiers and users of herbarium specimens and data are as much part of AVH as the herbaria themselves. It is important that everyone in the community knows that their contribution is recognised and how they can help further improve AVH.

Web ref. 1: <https://creativecommons.org/licenses/by/3.0/au/deed.en>

Web ref. 2: <http://www.ala.org.au/blogs-news/biogeographic-patterns-and-climate-change-a-teaching-resource-for-university-lecturers/>

Points of view

Crotalaria pallida (Fabaceae) in Western Australia – a case study in how to introduce a new weed.

Margaret T. Collins

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Invasive alien weeds can be a significant environmental problem, adversely affecting the survival and/or regeneration of indigenous flora and fauna, and as contaminants in horticulture and agriculture (Downey 2008). Correct identification of weeds is of obvious importance for flora surveys and conservation, but has also been identified as a problem in weed control because early detection is critical for successful eradication (Hosking et al. 1996, Hosking et al. 2004). However, training in taxonomy is in decline (MacLeod et al. 2010), experienced plant collectors and taxonomists are disappearing (Smith and Figueiredo 2009, Whitfield 2012) and plant identification skills do not appear to be highly valued outside herbaria.

Invasive alien species have been identified as key drivers of global environmental change, agents of species endangerment and extinction, and as having the capacity to inflict serious impacts on ecosystem processes that are fundamental to human well-being (Pejchar and Mooney 2009). The cost of invasive species can be considerable; for example, in Australia a 2004 report on the economic impact of weeds gave an estimate of the combined costs of

control and economic losses as A\$3.5-4.5 billion per annum (Sinden et al. 2004). Similarly, a 2005 analysis of the cost of environmental damage through invasive non-native plants displacing native species and restructuring habitats in the United States was estimated as US\$34 billion per year (Pimental et al. 2005). Terrestrial plant invasions often have a long lag phase during early establishment where the invading species undergoes a linear population growth prior to proliferation and spread (Mack et al. 2000). Eradication or management is most cost effective during this phase (Hosking et al. 2004).

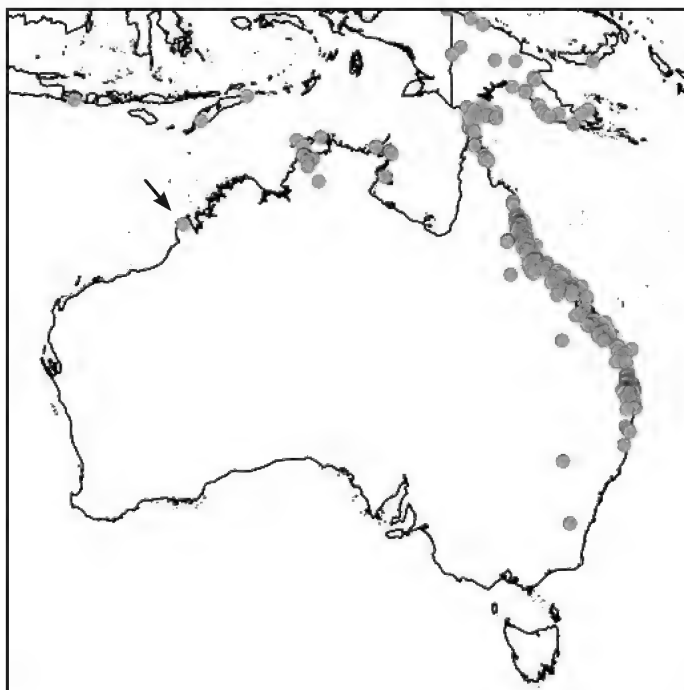
Two incidents in Western Australia illustrate the ease with which a weed species can establish, and demonstrate the need for good plant identification skills among plant breeders, botanists, seed collectors and horticulturists, and others working with plants in research and commerce. In mid 2012, a colleague showed me several Lupin species growing in a university shade house that were being grown to determine if they had any useful qualities for crop breeding. Among these were several large yellow flowered plants that looked very much like a *Crotalaria* species. My colleague stated

these were an unidentified *Lupinus* species from South America. The seed had been obtained from an accession donated to the WA Lupin genebank by an Australian plant breeder who was given the seed in South America by a South American bean breeder. It was originally collected from a plant growing in a street of Santiago de Cali, Columbia, and was described as a very small seeded lupin with the collection name 'Columbia Fine'. Following my putative identification as a *Crotalaria*, I carried out a quick web search for South American *Crotalaria*s with yellow flowers, which yielded multiple possibilities including *C. longirostrata* Hook and Arn. a taxon banned in Australia. A specimen was promptly sent off to the Western Australian Herbarium where it was formally identified as *Crotalaria pallida* Ait. a weedy species originating in tropical Africa (Polhill 1982).

A second incident occurred in early 2013 on a visit to the WA Herbarium, where a couple of plants that looked very much like *C. pallida* were found growing in a planter box outside the reception area. These were reported to the botanist in charge of the area and the plants subsequently formally identified by a herbarium staff member as *C. pallida*. These plants had been bought at a 'native' plant sale at a local botanic garden and had been grown from seed supplied by a commercial seed collection company. The supplier had identified the plant as *Crotalaria novae-hollandiae*, a species indigenous to northern Australia (collection site is unknown).

Crotalaria pallida has a pan-tropical distribution, but is thought to originate in Africa, where it prefers grassy areas, lakeshores and river margins (Polhill 1982). However its natural distribution has been partially obscured by widespread cultivation. Despite occasional reports of liver damage to livestock and poultry caused by the toxic pyrrolizidine alkaloids it contains (Everist 1974, Smolenski et al. 1981, Fletcher et al. 2009) it is used as a green manure and a fodder crop. *Crotalaria pallida*'s introduction to the Americas is thought to have coincided with the slave trade in the sixteenth century and it now occurs in high densities from southern Brazil to the south-eastern United States (Cogni et al 2011). It is also common in India, Sri Lanka, South-East Asia and has naturalised in coastal areas of eastern and northern Australia where it grows as a weed on agricultural land and in disturbed areas (Australian Tropical Rainforest Plants Version 6. 2010). At the time of its identification, Florabase, the WA Herbarium's web-based database of Western Australian flora, had a single record of *C. pallida* in Western Australia; at Beagle Bay, in the far north of the state (Florabase 2013)). Australian distribution of the species is shown in Fig. 1 (AVH 2013). From herbarium records it appears that the species is not yet widely spread in the state, though it would seem important to assess the

Fig. 1. Occurrence of *Crotalaria pallida* in Australia and adjacent regions. Comments from DAFWA staff suggested that the species is widespread in the state. However, there is a single herbarium record for Western Australia (arrowed) registered on the Western Australian Herbarium database (Florabase 2014). Map downloaded from the Australian Virtual Herbarium (AVH 2014).



degree of establishment and spread of the plant in the region.

If herbarium records are a correct reflection of the distribution of *Crotalaria pallida*, it is probably in the lag phase of its naturalisation in northern Western Australia. Considering *C. pallida* is well known as an invasive weedy species, and reported to have the capacity to produce over 77,000 tiny seeds per plant (Wu et al. 2005) it would seem appropriate not to encourage its cultivation nor to distribute seed. Unfortunately this is exactly what has happened. The plant has been misidentified as an indigenous species and seed distributed by a commercial seed collection company, it has been grown and sold to the public as a native plant by a botanic garden, and it has been incorporated into a Lupin seed bank by a state government department. The response from the weed control branch of this same government department, when informed of its presence in Perth, was that the species was unlikely to become a problem, that there were plenty of other *Crotalaria* species in Western Australia, and that it had inadequate resources to attempt control of anything other than the most dire of biosecurity threats.

It is evident that poor plant identification skills or practices, in surprising places, have played a significant role in the invasion of Western Australia by this species, and that inadequate resourcing of government departments may influence decisions on controlling it in the State and even eliminating it if the current occurrence is limited¹.

Acknowledgements

I thank Dr Gregory Keighery, Department of Parks and Wildlife, Bentley, for identification of the original specimen and Rob Davis, Department of Parks and Wildlife, Bentley, for confirming the identity of plants growing at the Western Australian Herbarium.

The original specimen has been lodged at the Western Australian Herbarium under catalogue number PERTH 8446768.

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Taxonomic synonymising as a threatening process in conservation

Stephen D. Hopper
CENRM & Plant Biology, UWA Albany 6330 WA

Kevin Thiele and Robyn Barker in the last ASBS Newsletter rightly called for greater scientific rigour and evidence-based approaches in the description of new taxa in groups where standards by some practitioners seem to be below par. I'm sure that most readers would applaud the call for basics like supplying keys, fulsome lists of annotated specimens, adequate descriptions based on explicit taxonomic hypotheses and concepts of rank, and good comparative diagnoses based on herbarium and field studies across the geographical range of groups being treated.

One worrying trend to me not mentioned by either author is the practice of dropping such laudable scientific rigour when it comes to synonymising taxa. How often are one-liners provided like 'minor variant' or 'presumed hybrid' as the only justification for consigning taxa to synonymy? Such unevidenced opinion should be tossed out by referees and editors of journals, in my opinion, unless the

authors furnish the appropriate evidence and theoretical/conceptual hypotheses they have tested to arrive at a conclusion of synonymy. What is a minor variant? How does it differ from species/subspecies? Why should hybrids be disregarded?

I am especially concerned about the conservation consequences of such undisciplined synonymising. To synonymise is to consign a taxon to obscurity, and possible future extinction, if the synonymised taxon is a threatened biological entity. For this reason, I propose that taxonomic synonymising should be considered a threatening process in conservation, equally as dire in its consequences as dieback disease, land clearing, loss of reproductive capacity, etc.

Taxonomists have to uphold scientific rigour in erecting new taxa. Equally, they should be accountable for the same levels of rigour and standards of evidence when they synonymise.

Too many authors? How many does it take to establish the taxonomy of a new species?

Robyn Barker
State Herbarium of South Australia

Publication of a new species of *Amorphophallus* in the Philippines recently listed ten authors for both the paper and the author citation (Magtoto et al. 2013). There is no indication in the paper of why there should be so many authors, and one wonders how many of them were involved in clarifying the taxonomic distinctiveness of the species. The final author, Hetterscheid, from the Von Gimborn Arboretum in the Netherlands has published extensively in *Amorphophallus*, including another new species from the Philippines with four other authors, none of them the same as here (Hetterscheid et al. 2012), and he also maintains the complete list of *Amorphophallus* for the International Aroid Society Inc. (Web ref. 1); the other authors are from the Biology or the Mathematics

and Computer Science Departments of the University of the Philippines.

The authorship of the name is cited in the Aroid Society page as *Amorphophallus adamsensis* Magtoto et al. making one wonder of what value the authorship is if it is to be abbreviated in this fashion, although perhaps the underlying database does not allow for the hundred or so key strokes required to fill this field in either the abbreviated¹ or non-abbreviated² forms.

¹ *Amorphophallus adamsensis* Magtoto, Mones, Ballada, Austria, R.M.Dizon, Alangui, Reginaldo, W.M.Galvan, K.T.Dizon & Hett. [IPNI citation]

² *Amorphophallus adamsensis* L.M.Magtoto, D.G.Mones, K.A.Ballada, C.M.Austria, R.M.Dizon, W.V.Alangui, A.A.Reginaldo, W.M.Galvan, K.T.Dizon & Hett;

In the protologue comparisons of the new species are only made with two of the ten species of *Amorphophallus* known to occur in the Philippines; no comment is made on how it differs from the other eight, or how it might differ from the many other Asian species. The description is based on a single specimen with the holotype, a unicate, lodged in the University of the Philippines Baguio Northern Luzon Herbarium.

More importantly, this example makes one wonder about who contributed what to the paper and how many of the authors would actually have been involved in the taxonomic process of recognition and description of the new species. Unfortunately, it would also appear to lend support to the argument by Costello et al. (2014) that an increasing number of authors being associated with the description of new species represents an expanding workforce for dealing with such new species, an argument which Bebbier et al. (2014) have been vigorously negating.

The Code lacks clear guidance on who qualifies to be included in the author citation of a new species, but traditionally, and implicitly in its rules and examples, it has been those involved in diagnosing, describing and naming. The author citation is used in botanical literature as a means of defining the name, particularly in separating homonyms. Authorship of the publication is used if no other information is provided. Just how many listed in the author citation of *Amorphophallus adamsensis* had the expertise to recognise the new species amongst its congeners and to describe it? Surely those who were not involved should be listed in acknowledgments or the general authorship of the article.

Coinciding with seeing this publication, I came across two papers documenting means by which credit can be attributed in the general authorship of multi-authored papers (Web refs. 2, 3). Examples of numbers in the author citations were not just 10 authors, but up to a thousand! Credit in these examples is given for any number of roles which would presently not rate a mention in systematic papers – roles such as programming, data curation, provision of resources, analysis, project administration and funding acquisition. While these can play a

part in achieving the recognition of a potential new species, and may in some circumstances qualify for inclusion in the authorship of the overall paper, they surely do not qualify for listing in the authorship of the new taxon.

Hopefully these examples are not a precursor to a new way of promoting participation in systematics at the expense of ease of citation of names. It may be time to look more closely at just who should be credited with authorship of taxonomic names, particularly with the changes in practise in carrying out taxonomic revisions. A proposal to amend the Code may be necessary to avoid an increasingly heavy rod for our nomenclatural back.

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Deaths

Lyndley Alan Craven (1945 – 2014)

Australian botany (and indeed the world) lost a significant friend and colleague with the passing of Lyn Craven. Lyn joined CSIRO in 1964, where, apart from a brief hiatus of three years to study horticulture at Burnley Horticultural College, he spent his entire working life, retiring from full-time employment in 2009 due to ill-health. Despite this, Lyn continued actively collecting, working and publishing on a range of plant groups, especially Malvaceae, Myrtaceae and *Rhododendron*, in his capacity as a post-retirement fellow with CSIRO. Lyn's

productivity only slowed in the final week before his death, at Clare Holland Hospice in Canberra. A service was held for Lyn in Canberra in 11th July 2014, with the very large attendance reflecting Lyn's beloved family, as well as many dear friends and colleagues, from all walks of life. He will be greatly missed.

A full obituary, covering Lyn's botanical career, is currently in preparation for a future issue of the Newsletter.

Brendan Lepschi
Australian National Herbarium, Canberra

John Walter Wrigley (1934 – 2014)

The death of John Wrigley marks a significant loss for Australian horticulture and botany. John is best known as the lead author of the book '*Australian Native Plants - Propagation, cultivation and use in landscaping*', released in 6 fully-revised editions (Wrigley & Fagg 1979–2013), which he produced with illustrator and photographer Murray Fagg. Over 200,000 copies of this title have been sold in total. The pair also produced books on Australia's Proteaceae (Wrigley & Fagg 1989), the *Leptospermum* alliance (Wrigley & Fagg 1993), and a botanical and social history of eucalypts (Wrigley & Fagg 2010).

John trained as an industrial chemist and worked with Shell and Unilever before being appointed as Curator at the then Canberra Botanic Gardens in 1967, a career change based on his hobby and passion for propagating and growing Australian native plants.

In the role of Curator John steered the Gardens to its official opening in 1970 and was responsible for the establishment of the Rainforest Gully and the Rock Garden, both significant landmark projects in the evolution of gardening using Australian natives.

Fig. 1. John Wrigley in 1967, shortly after his appointment as Curator of the Canberra Botanic Gardens.

Ph. Australian Nat. Bot. Gardens.

On leaving the then National Botanic Gardens in 1981, John moved to Coffs Harbour on the NSW north coast and there designed the North Coast Regional Botanic Gardens from scratch. From there he also established a plantation export industry using the immature foliage of native rainforest plants, especially Proteaceae, for the floristry trade.





Fig. 2. John Wrigley in 2009.

Ph. Wrigley family

John was a horticulturist who placed a strong emphasis on linking the growing plants to voucher specimens — he collected 4,481 herbarium specimens during his time at the Gardens in Canberra. He was also passionate about sharing his knowledge and experience: he produced 75 publications (17 books, 58 papers), two interactive computer garden software packages on CD, and a calendar on Australian plants. There are also 30 unpublished internal reports prepared by John during his work at what is now known as the Australian National Botanic Gardens (ANBG) (Web ref.).

These reports are stored in the ANBG Library & Archives.

Adenanthos ileticos E.C.Nelson is named for John Wrigley, with the epithet derived from the Greek for “to wriggle”. In addition, Wrigley material has been used as the type specimens for ten Australian plant taxa. Five of these are collections from the wild and the remainder were collected from living plants grown at the Australian National Botanic Gardens from material originally collected by John.

John died peacefully at the age of 80 on a trip to Brunswick Heads, near Coffs Harbour, with his wife Marcia by his side, on 17th July 2014.

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- Murray Fagg, Anna Monro, & Brendan Lepschi
Canberra

Australasian Systematic Botany Society Inc.

Notice of 2014 Annual General Meeting

In accordance with Section 25 of the Society's Rules, notice is hereby given that the annual general meeting of the Australasian Systematic Botany Society Inc. will be held on Wednesday 26th November 2014 in the AgHort Lecture Block, Massey University, Palmerston North, NZ, beginning at 4:00 pm (NZST).

The purpose of this meeting is to:

- confirm the minutes of the annual general meeting held on 3rd December 2013 (see ASBS Newsletter 157: 2–22).
- receive reports from Council on activities of the Society during the preceding financial year,
- declare the results of the vote for membership of Council.

Research grants

Next-generation systematics – new postdoc and PhD positions in orchids at ATH

Over the past few decades molecular systematics has contributed substantially to reconstructing the tree of life. However, standard molecular systematics approaches may provide only limited insights in cases where groups i) underwent a recent and rapid diversification, ii) are subject to reticulate evolution and/or iii) include polyploids, which applies to many of our highly diverse plant groups – with Orchidaceae being a prime example.

And in these groups other methods of inference, such as multivariate analysis of morphology, also often fall short due to complex patterns of variation that are difficult to interpret. Thus, many of our notoriously challenging plant groups still lack stable classifications and require major taxonomic revisions. Next-generation sequencing technologies now offer the unprecedented opportunity to investigate the evolution of such challenging plant groups. They facilitate the analysis of multiple copies of numerous genetic markers across large sample sizes, without a large investment in the development and application of molecular markers, which allows insights into complex phylogenetic relationships.

The orchid team at the Australian Tropical Herbarium led by Katharina Schulte, in close collaboration with Mark Clements (CANBR), and Kingsley Dixon (Kings Park), is now starting an ABRS funded 3-year project to unravel the evolutionary history of one of Australia's 'difficult' orchid groups, the iconic sun orchids, *Thelymitra*. The sun orchids contribute to Australia's remarkably rich and highly endemic flora of terrestrial orchids and represent one of the major radiations within the tribe Diurideae. The project aims to elucidate infrageneric relationships in *Thelymitra* based on next-generation sequencing approaches, to assess the taxonomic value of key morphological characters, and to improve our understanding of interspecific relationships in three species complexes (*T. anntennifera*, *T. nuda* and *T. venosa*).

Project funding comprises a **postdoctoral position** for 2.5 years, which will be advertised

shortly - for anybody interested please keep an eye on the James Cook University website (www.jcu.edu.au/jobs) or the ATH FaceBook page (<https://www.facebook.com/tropicalherbarium>). Further, the project offers an excellent opportunity for **PhD candidates** to be trained in next-generation systematics and to work on one of the *Thelymitra* species complexes. So, Australian students who intend to apply for an Australian Postgraduate Awards scholarship in 2014 and are looking for an exciting project, for more details please contact darren.crayn@jcu.edu.au or me (the deadline for APA scholarships this year is 31st October).

Katharina Schulte
katharina.schulte@jcu.edu.au

P.S. In the last Newsletter Kevin Thiele made a sound case as to why Australia's orchid taxonomy needs to lift its game. The project team hopes Kevin would agree that this project helps raise the bar a touch :).

The Norman Wettenhall foundation – small environmental grants

The Norman Wettenhall Foundation supports biodiversity conservation projects Australia-wide and they like to fund small groups where grants make a big difference. The objectives of the Small Environmental Grant Scheme is to support biodiversity conservation projects in Australia that are concerned with one or more of the following:

- monitoring and recording data
- community education
- community capacity building (training)
- research and science

Have a look at the page Awarded Grants and be impressed by the number and variety of the projects that they have funded – perhaps not directly systematics but many of the projects with a basis in systematics. Applications for funding are highly competitive and they are another group with limited resources and so you will need to communicate your passion for your subject and indicate how you will directly make positive changes to biodiversity conservation in Australia.

There are four grant rounds each year – March (money in May), June (money in August), September (money in November), December (money in February).

For more information visit their website <http://nwf.org.au/grants/small-environmental-grants/>

Philanthropic fund for species survival

The Mohamed bin Zayed Species Conservation Fund is a significant philanthropic endowment by His Highness Sheikh Mohamed bin Zayed Al Nahyan, Crown Prince of Abu Dhabi. It has been established to do the following:

- Provide targeted grants to individual species conservation initiatives
- Recognize leaders in the field of species conservation; and
- Elevate the importance of species in the broader conservation debate.

The Fund's reach is truly global, and its species interest is non-discriminatory. It is open to applications for funding support from conservationists based in all parts of the world, and will potentially support projects focused

on any and all kinds of plant, animal and fungus species, subject to the approval of an independent evaluation committee.

In addition, the Fund will recognize leaders in the field of species conservation and scientific research to ensure their important work is given the attention it deserves and to elevate the importance of species in global conservation discourse.

Thus far, since its beginnings in 2008, the MBZ Species Conservation fund has awarded \$10,866,364 for 1081 projects covering all biological classifications and \$990,881 for 107 plant projects.

The first round of applications for 2014 have now closed but the deadline for the next round of applications is October 31st 2014 and applicants will be informed if they have been successful in December 2014. For more details on the application process as well as a list of case studies of projects already supported, some of them systematic, visit their web page (Web ref.). Their vision and mission statement is particularly encouraging in today's world.

Web ref. <http://www.speciesconservation.org>

News

Mosses feature in New Zealand eFlora

Six family treatments for the *Flora of New Zealand*, *Mosses* are now available online. These new treatments, all by Allan Fife, are for the Amblystegiaceae, Buxbaumiaceae, Encalyptaceae, Entodontaceae, Ephemeraceae, and Erpodiaceae.

There are 68 families of mosses in New Zealand and over the next 3 years these will be progressively published in the eFlora, with each family being published as a separate fascicle. In the next few months Allan Fife's treatments of the families Bruchiaceae, Bryaceae, Cyrtopodiaceae, Fabroniaceae, Hylocomiaceae, Hedwigiaceae, Leptodontaceae and Meesiaceae will be published while Jessica Beever's treatment of the Fissidentaceae is now completed and ready for publication.

These family treatments are accessible in two ways.

- as a downloadable pdf.
- or online within the eFlora by searching for a taxonomic name.

The treatments include keys, accepted names and synonyms, descriptions, etymological, distributional, habitat, and other notes. Each species is illustrated by line drawings prepared by Rebecca Wagstaff. In the future we hope to produce other profiles that will be tailored to various user requirements.

Considerable resources have gone into the eFlora, which was conceived by Dr Aaron Wilton and developed in collaboration with his informatics colleagues Bavo de Pauw and Margaret Watts. The production and delivery of Allan Fife's and Jessica Beever's new eFlora moss treatments involve a large team of people. Some of the key tasks have included: eFlora editorial standards and guidelines (Ilse Breitwieser, Patrick Brownsey, Peter Heenan and Aaron Wilton); reviewing and editing manuscripts (Rod Seppelt, Jessica Beever, Sue

Gibb, Bill Buck, Peter Heenan and Christine Bezar); updating names and literature in Ngā Tipu o Aotearoa – New Zealand Plants database (Sue Gibb); drawing and preparing images (Rebecca Wagstaff, Rod Seppelt, and Kate Boardman); and uploading and formatting text (Katarina Tawiri and Sue Gibb).

Two other new eFlora treatments have also been published electronically and as a pdf:

- an updated Hypericaceae treatment by Peter Heenan.
- a new treatment of Centrolepidaceae by Kerry Ford.

For further information on the eFlora contact the project Editor-in-Chief Dr Ilse Breitwieser or Allan Herbarium research leader Dr Peter Heenan, and for information on the moss treatments contact Dr Allan Fife.

Adapted from
The Plant Press 7, News from the Allan Herbarium.
www.landcareresearch.co.nz/publications/newsletters/plantpress/issue-7,-august-2014

ABRS grants for 2014–15

These were determined in April 2014. Congratulations to the recipients and their supervisors or institutions.

Research Grants – Vascular Flora-

- N. Nagalingum, Royal Botanic Gardens & Domain Trust, NSW. A comprehensive phylogeny and classification of the threatened cycad genus *Cycas*: \$33 000. Three years
- T. Schuster, The University of Melbourne. Untangling the phylogeny of amphi-pacific lignon (*Muehlenbeckia* Meisn.) through genomic data: \$33 000. Three years
- T. Scharaschkin, Queensland University of Technology. Generic delimitations in Rottboelliinae (Andropogoneae, Panicoideae, Poaceae) based on phylogenetic analysis of molecular and morphological data: \$297 000. Three years
- R. Jobson, Royal Botanic Gardens & Domain Trust, NSW. Phylogeny, phylogeography and species limits within the genus *Themeda* Forssk. (Poaceae): \$33 000. Three years
- C. Micheneau, James Cook University. Next-generation systematics for Australia's challenging taxa: unravelling phylogeny, evolution and species delimitation in the sun orchids (*Thelymitra* Orchidaceae): \$297 000. Three years

Non-salaried researcher grants – Flora

- E. Davison, Curtin University. Molecular characterisation of *Amanita* spp. from section

Phalloideae from Western Australia: \$5 500. One year

- W. Barker, State Herbarium of South Australia. Taxonomic studies in Australian plant families traditionally placed under Scrophulariaceae s.lat. I. A revision of Phrymaceae: \$5 500. One year.

Honours/Masters Scholarships – Flora

- A. Crowe, University of Melbourne. Genetic assessment of species concepts in eucalypts: \$11 000. One year

APA Top-Up Awards – Flora

- M. Stimpson, University of New England. Systematics, evolution, ecology and taxonomy of the *Banksia spinulosa* complex: \$11 000. One year
- N. Thomas, University of New England. Systematics of *Tasmannia* informs biogeography of Winteraceae: \$11 000. One year

Student Travel Grants

- B. Anderson, The University of Western Australia. Diversity in the *Triodia basedowii* E.Pritz. species complex and its implications for the evolution of the Australian arid zone biota: \$1 650. Less than one year.
- N. Thomas, University of New England. Systematics of *Tasmannia* informs biogeography of Winteraceae: \$1 650. Less than one year.

From: www.environment.gov.au/node/36259

Muelleria online

The motto of the MEL AVH team was ‘The Baron loves broadband’, which would certainly be the case were he still botanising, especially now that his eponymous journal is online.

From the current issue (number 33) onwards, articles in *Muelleria* will be published online first, as they are accepted (access at Web ref.)¹. The print version will appear once a year (around March) after all the individual articles are published online. Electronic open-access versions of older printed issues are gradually being added to the *Muelleria* website. Currently, volumes 30, 31 and 32 are available.

Issue 32 of *Muelleria* has just appeared in print, and contains articles on new species of *Olearia* (Walsh) and *Pluchea* (Albrecht & Bean), a revision of the *Coronidium scorpioides* complex (Walsh) and a study of the taxonomy

¹ Congratulations! *Muelleria* joins *Australian Systematic Botany*, *Austrobaileya* (to 2012 on JSTOR), *Journal of the Adelaide Botanic Gardens*, *Nuytsia* and *Telopea* in publishing on-line and then (in now smaller runs) printed versions. Eds.

of *Xanthorrhoea glauca* subsp. *angustifolia* (Bellette), as well as a number of articles on historical themes. Gillbank discusses the concept of *Picris hieracioides* over time in terms of taxonomy and weed status. Two articles utilise the extensive historical collections of extra-Australian plants, algae and fungi in MEL (many from the ‘Sonder collection’). Van de Beek draws attention to type and authentic material in MEL of European and South African *Rubus* taxa. Gallagher and Moraes discuss collections of plants from Brazil by Prince Maximilian zu Wied, of which MEL holds one of the largest sets. Maroske focusses on the collecting activity of Mueller’s more than 200 female collectors, pointing out the importance of their contributions to his botanical endeavours. Maroske and Vaughan provide a detailed biographical register of the women collectors, who included children and Aboriginal people. The biographical register is accompanied by maps of collecting localities, selected portraits and examples of handwriting. Thurlow rounds off the issue with a review of Penny Olsen’s new book *Collecting ladies: Ferdinand von Mueller and women botanical artists*.

Web ref. *Muelleria online*. www.rbg.vic.gov.au/science/publications/muelleria/muelleria-online

Tom May & Alison Vaughan
Royal Botanic Gardens Melbourne

Proposals for changes to the Code now open

Taxon is open to receive Proposals to Amend the Code at the 2017 International Botanical Congress in Shenzhen, China with the first issue of 2014; the timetable and regulations for such proposals along with points to note in making them was published in *Taxon* 62: 1071–1072 (2013).

Guidelines for proposals to conserve or reject names was published in the March issue of *Taxon* (Web ref.).

Web ref.: www.iapt-taxon.org/downloads/guidelines_proposals.pdf

Plant anatomy course at QUT.

Dr Tanya Scharaschkin and the Plant Structure and Systematics group at QUT ran a highly successful 3-day course “Plant Anatomy for Scientists” in June 2014.

The CPE course was held at the Queensland University of Technology (QUT), Gardens Point campus and 26 scientists attended. Botanists, teachers, technicians and even engineers participated actively making anatomical sections, describing and staining plant tissues. A number of attendees came over from different regions (Brisbane, Cairns, Townsville) to participate in the workshop. Some members of the ASBS (Lorna Ngugi, Melodina Fabillo, Joshua Buru, John Thompson, Cristina Latorre and Hernan Retamales) also participated in the course. The main objectives of the workshop were to provide attendees with theoretical knowledge and technical expertise in order to conduct independent research involving plant structure. Similarly, participants learnt techniques regarding microscopy and histochemistry in an interactive environment. Skills acquired or strengthened during the course are relevant for the study of Australian plants and their importance in diverse ecosystems and agriculture. This was also a remarkable opportunity for the participants to share experiences, anatomical protocols, and techniques. This and other scientific activities that gather the botanic community of the region are useful to homogenize knowledge and improve the connections between the different investigation groups. A more detailed report about this activity will be included in a future ASBS newsletter.

Hernan Retamales

Reducing the threat of new invasive species – a Senate enquiry

The Senate has just set up an inquiry looking at how to better protect Australia’s natural environment from new invasive species.

The inquiry will look at examples since 2000 of accidental and deliberate failures in preventing new invasive species establishing and how to improve the prevention of new incursions (risk analysis, contingency planning, surveillance, responses and institutional arrangements).

The Invasive Species Council has prepared a submission guide in support of stronger biosecurity to protect the environment. Submissions are due on 12th August, but if you email ec.sen@aph.gov.au by this date you can

make a submission up to Friday 22nd August.

For more information: <http://invasives.org.au/blog/stopping-new-invasive-species-need-voice/>

Andrew Cox,
CEO, Invasive Species Council
andrewcox@invasives.org.au
www.invasives.org.au

From: enviroweeds@une.edu.au

Lucid key for South-western New South Wales plants and fungi

Betty Wood's Lucid key to the plants and fungi of south-western NSW is now available on the internet (Web ref.). The northern boundary of the area covered by the key is a line drawn from 33°S 141°E to 33°S 143.25°E, the west boundary is along the South Australian border, the south boundary the northern bank of the Murray River, and the east boundary a line south from 33°S 143.25°E to the north bank of the Murray River.

Reserves in the area include Tarawi Nature Reserve, Mallee Cliffs National Park, Mungo National Park, Mungo State Conservation Area, Nearie Lake Nature Reserve, Euston Regional Park, Kemendok National Park and Kemendok Nature Reserve, Scotia Sanctuary and Nanya Station.

Even if you don't need the key, access to the fact sheets often provides some great photographs of the taxa concerned, many of them by Don Wood from the Scotia Sanctuary, where much of this study was carried out between 2006 and 2012. The only thing I found a little disconcerting here is that all names, accepted and synonyms, are in the same font and so a lot of old names are included. But you will find that if you search for instance under the old *Morgania glabra* you are taken to a fact sheet headed *Stemodia glabella*.

Web ref. <http://keys.lucidcentral.org/keys/v3/scotia/>

A new species honouring Paul Forster

Congratulations to Paul Forster after whom a new PNG species *Phyllanthus piforsteriana* has been named, perhaps not in quite conventional fashion. But how do you pronounce the species name?

Reference

Takeuchi, W. (2014). Notes on *Phyllanthera* (Apocynaceae) from the upper Sepik of Papua New Guinea: *P. lancifolia* and *P. piforsteriana* sp. nov. *Phytotaxa* 163 (3): 173–179. www.mapress.com/phytotaxa/content/2014/f/p00163p179f.pdf; doi.org/10.11646/phytotaxa.163.3.4

WATTLE ver. 2.2 release

The latest version of the WATTLE identification key for Australian *Acacia* sens. lat. species is now available on the web at LucidCentral (Web ref. 1). To locate the key from the LucidCentral home page select Keys/Search for a key and enter WATTLE in the search box.

WATTLE ver. 2.2 includes 1274 taxa which is 109 more than in the original version of WATTLE that was published in 2001. These represent all Australian occurrences of formerly described *Acacia* sens. str., *Acaciella*, *Vachellia* and *Senegalia* taxa, together with Phrase Name taxa and common hybrid entities where these exist in the public domain and are accompanied by a description.

For most taxa in WATTLE ver. 2.2 links are provided to the following set of information:

- Description (sourced from ABRIS Flora Online)
- Images (from WorldWideWattle website)
- Map (from AVH)
- Nomenclature (from APNI)

Note: There are 15 species for which these links are not provided; these are species that are currently in press in *Nuytsia*.

Rebecca Coppin is thanked for her painstaking and professional work in assembling the above cluster of information for me.

I find that the most efficient way to undertake an identification with WATTLE is to answer as many of the questions you can from the default Fast Find character set (that appears when you first start the key), then load the All Taxa subset and run Best. If you are identifying a specimen of section *Lycopodiifoliae* (species with phyllodes arranged in regular whorls) then it is recommended that you load the Whorled phyllode taxa (character set) subset. If you are identifying a specimen of the Mulga group (*A. aneura* and its allies) from Western Australia it is recommended that you invoke the Mulga TAXA and Mulga FIRST CUT CHARACTERS

subsets, answer as many questions as possible, then load the Mulga ALL CHARACTERS subset and run Best.

On LucidCentral you will see that there are two options for playing the WATTLE 2.2 key:

- Lucid Key Server Edition
- Lucid Java Applet Player

Personally I prefer the latter because it looks and operates in the same way as recently superseded versions of the Lucid Player. By clicking on "Use this version" for the second option an applet version of the Player will be downloaded to your computer (c. 760 kb; this can take a few seconds to load); the Player will then run and remain active within your browser. If you close your browser you will need to revisit the url and reload the Player.

The Applet Player is Java dependent: so if you have any problems opening the Player then you may have to install the most recent version of Java which is available also at the LucidCentral.

If you find errors in WATTLE2 or have problems identifying specimens then I would love to hear from you because I intend to maintain the currency of data and to provide regular updates.

Web ref. 1. www.lucidcentral.org

Bruce Maslin
bruce.maslin@dpaw.wa.gov.au

Update on campaign against Kew cuts

The on-line petition against cuts that threaten over 120 positions at Kew (Web ref. 1) was mentioned in the last Newsletter.

Kew campaigners successfully handed the petition into 10 Downing Street on Monday, 9th June. It received wide media coverage and the petition handover was shown on ITV London News at 6pm! The petition was tabled in the British Parliament on 17th June (Web ref. 2).

This is not the end! The campaign continues and a meeting with the Secretary of State for Environment, Food and Rural Affairs, Owen Patterson, has been requested. A House of Commons rally was held on 8th July.

You can still sign the petition. There are now over 102,000 signatures.

Web ref. 1. www.change.org/en-AU/petitions/globally-important-conservation-and-science-under-threat-at-royal-botanic-gardens-kew-due-to-uk-government-cuts-5m-deficit-will-lead-to-loss-of-over-120-posts

Web ref. 2. www.parliament.uk/edm/2014-15/117

300th anniversary of the Komarov Botanical Institute

In 2014 the V.L. Komarov Botanical Institute of the Russian Academy of Sciences, the oldest scientific institution in Russia, celebrates its 300th Anniversary. It was founded in 1714 by order of Tsar Peter the Great, initially as a medical herb garden.

Official celebrations took place in June when Russian and international invited lecturers discussed major aspects of modern botany followed by an official plenary meeting 2014 devoted to presentations on the history and scientific achievements of the Komarov Botanical Institute.

Amended from: <http://www.binran.ru/en/300-years/>

Changes for Lucid and Lucidcentral

For the past 15 years the Lucid team has been based at The University of Queensland, Brisbane, Australia. As of the 1st July 2014, the Lucid team of Matt Taylor, Damian Barnier, Mike Rickerby and Geoff Norton will operate from a newly created company, Identic, based in Brisbane.

The University of Queensland has transferred all Intellectual Property associated with Lucid and other products to this newly formed company. As a Lucid user you will not notice any significant difference. The Lucidcentral web site will remain the same, if you are registered your registration on the site will be maintained, and information and support services will continue as usual.

Over the next 6 months it is planned to upgrade a number of products and to increase the number of Lucid keys available as Android and iOS apps.

If you wish to consult on future developments or projects, contact Matt Taylor at matt@lucidcentral.org.

From the Web

19th century New Zealand scientific letters

For some background to 19th Century science in New Zealand a number of letters have been published recently, some of them translated from German. These three papers in particular are all downloadable from the Geoscience Society of New Zealand (Web ref. 1).

Nolden, S. (2013) *The letters of Ferdinand von Hochstetter to Julius von Haast. (download as a 4.5Mb pdf file).*

An annotated edition of translations of 133 letters written between 1859 and 1887 by Ferdinand von Hochstetter, generally regarded as the father of New Zealand geology, to Julius von Haast, geologist and founder of the Canterbury Museum in Christchurch.

Nolden, S., Nathan, S. & Mildenhall, E. (2013). *The correspondence of Julius Haast and Joseph Dalton Hooker, 1861-1886. (download as a 3.0 Mb pdf file.)*

Transcriptions of all the surviving letters between Hooker and Haast from 1861 until Haast's death in 1887.

Galloway, D. (2013). *A man tenax propositi: transcriptions of letters from Charles Knight to William Jackson Hooker and Joseph Dalton Hooker between 1852 and 1883 (download as a 1.1Mb pdf file). ISSN 2230-4495 (Online)*

Charles Knight (1808-1891) corresponded for over 30 years with William and Joseph Hooker. This collection of 42 letters outlines the botanical work that Knight undertook as a dedicated amateur botanist, as well as giving some incidental insights into the workings of the New Zealand Government. The letters also chart the course of J.D. Hooker's preparation and publication of the *Handbook of the New Zealand Flora* (1864-1867), the funding of which was of close concern to Knight. Knight was employed in Adelaide by the Governor of South Australia, George Grey, from 1841 and when Grey moved to

become Governor of New Zealand in 1845, Knight went with him, and spent the rest of his life there. His main interest was lichens
[From the introduction to the paper]

Web ref.: www.gsnz.org.nz/information/misc-series-i-49.html

Two blogged viewpoints by Roderick Page.

Two items on Roderick Page's blog draw attention to issues of interest. The first (Web ref. 1) was this year and points to a paper in *Science* (Minteer et al. 2014) once again questioning the need for scientific vouchers and suggesting that high-resolution photography, audio recording, and nonlethal sampling should provide adequate substitutes. Admittedly in this case the examples given are all rare animal species but Kevin Winkler, an ornithologist from the University of Alaska Museum makes a strong case for the need for the physical specimen (Web ref. 2). An extension of this issue, the designation of a holotype for a new species based on a barcode record in GenBank which lacks a voucher specimen, was further discussed in TAXACOM under the subject "Minimum standards for e-voucher documentation".

The second and older post (Web ref. 3) questions why botanists are locking their data away in JSTOR Plant Science. This topic does need to be addressed since it seems to be counter to all of the arguments expressed in making all herbarium data available through the AVH. Besides that it is extremely frustrating to know that a specimen is available and not have access to it!

References

- Minteer, B. A., Collins, J. P., Love, K. E., & Puschendorf, R. (2014, April 18). Avoiding (Re) extinction. *Science*. American Association for the Advancement of Science (AAAS). doi:10.1126/science.1250953 (paywall)
- Web ref. 1: <http://iphylo.blogspot.com.au/2014/04/is-collecting-specimens-necessary.html>
- Web ref. 2: www.universityofalaskamuseumbirds.org/reaffirming-the-specimen-gold-standard/
- Web ref. 3: <http://iphylo.blogspot.com.au/2013/02/why-are-botanists-locking-away-their.html>

Ferdinand Mueller's alpine Itinerary

In the early 1850s Ferdinand Mueller went on three remarkable journeys of botanical exploration in the alpine region of north-eastern Victoria, much of it on his own. There has always been some uncertainty about the exact routes that he followed and interpretation of the geographical place names used on specimens. Home's paper is a revisiting of Mueller's reports and correspondence and also the topography of the regions concerned, and he reaches some conclusions which will have some implications in interpretation of Mueller's collecting localities from these expeditions.

Reference

R.W.Home (2014). Ferdinand Mueller's Alpine Itinerary *Historical Records of Australian Science*, 25: 1–17. <http://dx.doi.org/10.1071/HR14003>

Collecting in present day PNG

An account published in Jan 2013 of the trials and tribulations of plant collecting in Papua New Guinea and with a background to the National Herbarium of PNG, Lae.

Reference

Jun Wen & Marc Appelhans, Trails and Trials in Papua New Guinea *Plant Press* vol. 16. http://nmnh.typepad.com/the_plant_press/2013/01/trails-and-trials-in-papua-new-guinea.html

Mapping tools

There are now two posts of reviews by Kew's Geographic Information Science (GIS) Unit of online mapping tools (Web ref. 1). The first looks at a programme called *SimpleMappr* for producing distribution maps for publication and the second at an app for mobile mapping called *Locus Map*.

And for those of you interested in getting the most out of your GPS you might find Bob Mesibov's article "Latitudes and longitudes: part 1" in the March issue of the newsletter of the Society of Australian Systematic Biologists of interest (Web ref. 2).

Web ref. 1. www.kew.org/discover/blogs/gis

Web ref. 2. www.sasb.org.au/banksia.html

Valuing natural resources – a new formula

A recent paper on the evaluation of natural resources by Fenichel & Abbott (2014) might

make interesting reading for those of you who are mathematically inclined, but was unintelligible to this reader. More in my line is the interpretation in *Science Daily*, the introduction to which is reproduced here.

Imagine that you are considering selling stocks that you own in a company. You would probably consider how much the shares are worth today, how much they might be worth in the future and how much you might receive in dividend payments for each year you hold onto the stock. Much of your decision is informed by market wisdom and research.

Now imagine that you manage acres of old-growth forest - or another natural resource, like some fish in the ocean. How do you decide whether to use the resource now or conserve it as natural capital for the future?

In a study published recently in the *Journal of the Association of Environmental and Resource Economists*, researchers from Arizona State University and Yale University have developed a first-of-its-kind, interdisciplinary equation to estimate the current monetary value of natural resources such as fish stocks, groundwater or forests in the United States. In assigning natural capital monetary value, the approach will have widespread implications for policymakers and various stakeholders, and will also advocate for the creation of robust asset markets for natural capital, a much-needed advance.

References

Arizona State University. "New formula assigns dollar value to natural resources." *ScienceDaily*, 10 June 2014. www.sciencedaily.com/releases/2014/06/140610144354.htm

Fenichel, E.P. & Abbott, J.K. (2014). Natural capital: From metaphor to measurement. *Journal of the Association of Environmental and Resource Economists* 1: 1-27 (Spring/Summer 2014). DOI: 10.1086/676034. www.jstor.org/stable/info/10.1086/676034

Wood collection

The publication of a paper in *Historical Records of Australian Science* on the ANU wood collection last week (Dargavel et al. 2014) reminded me that I had intended some time ago to ask what had happened at the meeting that was convened in Canberra a couple of years ago to discuss wood collections. I came across the invitation to attend the meeting a while ago and meant to do something about it then but

it got put on the back burner. The paper just printed doesn't really give much detail except about the ANU collection which still seems to be in limbo.

Does anyone who attended have any thoughts on the matter of wood collections as a result of that meeting? It would be good to have a note about the outcomes from a herbarium perspective in the *ASBS Newsletter*

Reference

- Dargavel, J., Evans, P.D. & Dadswell, G. (2014). From science to heritage: the history of a wood collection. *Historical Records of Australian Science* 25: 43–54. <http://dx.doi.org/10.1071/HR14004>

Orchid resource

For those of you involved in orchid studies, or those just interested in orchids, the Swiss Orchid Foundation at the Herbarium Jany Renz provides access to information about orchids on a global basis (Web ref.).

The foundation was established after the University of Basel received the herbarium and library of Jany Renz after his death in 1999. Specimens from his herbarium as well as others from joint collectors Bernoulli & Cario, Basler Botanische Gesellschaft (BBG) and the Institute of Botany at the University of Basel have all been digitised.

Images of herbarium specimens, photographs and hand-coloured drawings of about 80,000 orchid specimen can all be accessed via the database. Furthermore there is a searchable orchid literature database, but this requires registration, unlike the previous one mentioned.

A quick search for Australian genera returned 25 records for *Calochilus*, 483 for *Caladenia*, 187 for *Thelymitra* and 29 for *Microtis*, while a search for *Caladenia flava* returned images of five herbarium specimens, 23 colour photographs and one image taken from Fitzgerald's *Australian Orchids*.

Web ref. <https://orchid.unibas.ch/site.home.php>

A cockatoo in Europe in 1496

The Sulphur-crested Cockatoo has been known in Europe since the late 1600s. See for instance its depiction in the 1690 painting by Melchior d'Hondecoeter (1636–1695), entitled *The Menagerie* (Web ref. 1), which hangs in the Rijksmuseum in Amsterdam.

Hellmut Toelken recently pointed to an article (Web. ref. 2) in which the presence of the bird in Europe may now have been pushed back to the late 1400s. The painting *Madonna della Vittoria* by Andrea Mantegna in 1496 hangs in the Louvre in Paris and appears to depict the bird in the background. The presence of what was assumed to be an Australian bird caused quite a lot of speculation in the press earlier this year but the historian concerned and *Birding Australia* (Web ref. 3) are both treating the bird as the smaller Indonesian Sulphur-crested Cockatoo, as it was in the 1690 painting.

Incidentally the first Australian plant collection still extant is, as far as I am aware, the collection of *Synaphea spinulosa*, probably collected from the Swan River in 1697, in the Geneva herbarium. (George 1995).

References

- George, A.S. (1995). *Synaphea spinulosa*. *Flora of Australia* 16: 277.
Web ref. 1: http://en.wikipedia.org/wiki/File:Melchior_de_Hondecoeter_001.jpg
Web ref. 2: <http://www.theguardian.com/world/2014/mar/19/cockatoo-perched-in-renaissance-painting-forces-rethink-of-history>
Web ref. 3: <http://birding-aus.org/sulphur-crested-cockatoo-in-renaissance-painting-2/>

What is an ISBN number?

I've often seen ISBN numbers cited in different ways and here's why.

The International Standard Book Number (ISBN) is a 13-digit number that uniquely identifies every edition of a book or book-like product (e.g. audio books on CD or DVD, e-books) published internationally. Hard cover and soft cover editions of the same book will have a different ISBN.

Before January 2007 every ISBN consisted of 10 digits. Since then the ISBN has been changed from 10 to 13 digits although 10 digit numbers can still be allocated or the 10 digit number converted to a 13 digit number. The thirteen digit number is divided into five parts, each part usually separated by a hyphen since the parts vary in length.

The five parts/ISBN-13 will be prefixed by "978"

- Group or country identifier which identifies a national or geographic grouping of publishers;

- Publisher identifier which identifies a particular publisher within a group;
- Title identifier which identifies a particular title or edition of a title;
- Check digit is the single digit at the end of the ISBN which validates the ISBN. In converting a 10 digit number to a 13 digit number with the addition of 978 at the start, it is this final number which may differ.

The case of e-books is a little more complicated and is still evolving. The current recommendation of the ISBN organisation is that “each different format of an electronic publication (e.g. ‘.lit’, ‘.pdf’, ‘.html’, ‘.pdb’) that is published and made separately available shall be given a separate ISBN.” And this has been variously interpreted within the industry.

For further information on this topic see the FAQs section of the ISBN website

Web ref. www.isbn.org/faqs_general_questions

Another proposed solution to “the *Acacia* problem”

Just seen this in the latest *Taxon* (Miller & Mishler 2014). We leave it to you to make your own judgment; it very much depends on how you feel about the PhyloCode.

Acacia has a complicated taxonomic history including a recent controversial retypification. We suggest that the entire recent *Acacia* debate is due to inadequacies of the International Code of Nomenclature (ICN), particularly that it requires that all taxa be classified in ranks. The ICN system was not designed for phylogenetic classification and the *Acacia* nomenclatural fallout reflects this shortfall. We recommend an alternate phylogenetic classification based on the PhyloCode. We propose the name *Acacia* for the most inclusive clade including the non-monophyletic ICN-based genus *Acacia* s.l., thereby retaining the name *Acacia* for use on all descendant lineages including *Mimosa* and Ingeae. Additionally we provide

PhyloCode-based names for five monophyletic lineages of genus *Acacia* s.l. but not for a sixth until additional information is available. This rankless phylogenetic classification system provides an elegant solution to the *Acacia* controversy and provides stable, relevant information about this branch of the tree of life. [Abstract].

Reference

Miller, J.T., Seigler, D. & Mishler, B. D. (2014). A phylogenetic solution to the *Acacia* problem. *Taxon* 63: 653-658.

A new collection of Australian colonial art in Sydney

In 2011, the State Library of New South Wales acquired a significant new collection: six volumes of Australian natural history drawings dating from the first days of settlement. The watercolours, now collectively known as the Earl of Derby collection, were collected and copied by Aylmer Bourke Lambert and include First Fleet era drawings and specimens received from Surgeon John White (1756 – 1832), Governor Arthur Phillip (1738 – 1814), Colonel William Paterson (1755 – 1810), Major Robert Ross (1740 – 1794), Philip Gidley King (1758 – 1808), and Major Francis Grose (1758 – 1814). On Lambert’s death the collection was purchased by the 13th Earl of Derby.

You can access the whole collection on line (Web ref.) but at this stage there is no identification of the various plants and so it is just a matter of flipping pages. When it comes to identification there should be no problem in reaching a genus and in most cases the species should also be obvious because of the limited region, but some of them, such as the many *Banksias*, are very stylised. A book was published to coincide with an exhibition of some of the art earlier this year (see New Books, p. 27).

Web ref. <http://acms.sl.nsw.gov.au/item/itemDetailPaged.aspx?itemID=940934>

Compiled by Robyn Barker

New books

Curious Minds: The Discoveries of Australian Naturalists. By Peter Macinnis. National Library of Australia; October 2012
216 pp.; ISBN: 9780642277541.
Reduced price \$19:95

For those already steeped in the history of Australian naturalists this book holds few surprises but, as with many books now appearing from the National Library, this is beautifully illustrated and appealingly laid out. If you are not familiar with the likes of Joseph

Banks, Charles Darwin, Amalie Dietrich, Ludwig Leichhardt, Ferdinand von Mueller, Ellis Rowan, John Lewin and John and Elizabeth Gould and their involvement in the documentation of Australia's natural history then here is an easily read volume which would grace any bookshelf. And the reduced price is a steal.

For those seeking a review there is one in issue 130(5) of *The Victorian Naturalist* and another, not seen, in the *Journal of Australian Colonial History* 15: 230-231 (2013), but for a less scientific analysis see the ANZ Litlovers LitBlog (Web ref.).

Web ref.: <http://anzlitlovers.com/2013/04/21/curious-minds-the-discoveries-of-australian-naturalists-by-peter-macinnis/>

The Weed Forager's Handbook: a Guide to Edible and Medicinal Weeds in Australia. By Adam Grubb & Annie Raser-Rowland. Hyland House Publishing; first edn 2012, reprinted 2013. ISBN: 9781864471212 (softcover). Price: \$21.95

This little book of edible and medicinal weeds has obviously proven to be popular since it has already been reprinted since its first publication in 2012. It has lots of interesting historical information about the 20 main weeds covered, amongst them some very familiar ones such as *Solanum nigrum*, blackberry, stinging nettles, *Nasturtium* and fennel, but also some surprises such as the *Malva* species and *Portulaca*. There is emphasis on correct identification and the inclusion of some proper recipes, including the well-known stinging nettle soup and how to remove the sting, as well as instructions for weed "tea" as a means of their control and the addition of nutrient to your garden. The authors also have an informative website "Eat that Weed" (Web ref.) and conduct edible weed walks and workshops in Melbourne.

Web ref.: <http://www.eatthatweed.com/>

Estuary plants and what's happening to them in South-East Australia. By G. Sainty, J. Hosking, G. Carr and P. Adam (Eds). Sainty and Associates Pty Ltd: Potts Point, NSW. (July 2012). 656 pages, with photographs, maps, illustrations. Hardback ISBN: 9780958105538. Price: \$85.00.

This colourful volume is in two parts. The first half, "Estuary Plants", includes coverage at species level of seagrasses, algae, mangroves, low saltmarsh and high saltmarsh plants as well as fringing and brackish plants. All of the species are represented by excellent photographs, many of them labelled with salient features, together with some text which includes information on origin, key features, value in the ecosystem, notes and references and an AVH map of their occurrence in Australia. Following this there is a section entitled "What's Happening to Them", consisting of 22 sections written by specialists on diverse subjects such as individual areas and their management, mapping, rehabilitation, sea levels and climate change, the effects of urbanisation, the effects of boating on vegetation, algal blooms and the interaction of midges, birds, fish and mosquitoes with the estuarine environment. Perhaps the preamble summarises it best

This book is about plants that grow in estuaries and protected saline places along coastal south-east Australia. It is laid out to help the layperson identify these species, and provide information on the range of salt-tolerant plants in coastal NSW and Victoria. It also focuses on the ongoing damage that urban, industrial and agricultural development does to these systems. It is a reminder that continued population growth around Australian estuaries is disastrous for many organisms that live there.

Even though the book has been out since July 2012, it seems to have slipped under the radar and very surprisingly there was only one review that I could find and that relatively recent and also very enthusiastic (Newton, November 2013). This volume should be an essential in the library of anyone working in the coastal environment.

Reference

Newton, Gina (Nov 2013). Estuary plants and what's happening to them in south-east Australia [Book Review]. *Australasian Plant Conservation: Journal of the Australian Network for Plant Conservation* 22(2): 27-28.

Natural Curiosity: Unseen Art of the First Fleet. By Louise Anemaat. Publishers: NewSouth. Apr 2014. ISBN 9781742234090. Paperback, 256 pp, 280x230mm. AUD\$39.99, NZD\$47.99.

This book was published to coincide with the exhibition of some of the artwork from the Earl of Derby collection displayed at the State Library of NSW between March and May this year. (See report on p. 26)

The code decoded. A user's guide to the International Code of Nomenclature for algae, fungi, and plants. (*Regnum Vegetabile 155*). By Nicolas Turland. Königstein: Koeltz Scientific Books. (2013). 169 pp. Hardback. ISBN 978-3-87429-433-1. Price: £41.50 / Euro 43.00 / US\$61.49.

This guide relates to the Melbourne Code, the *International Code of Nomenclature for algae, fungi, and plants*, and the aim has been to create a more easily comprehended text to serve

Newer users of the Code as well as veterans who are not familiar with every arcane detail.

Individual chapters consider topics such as publishing new names, finding the correct name for a taxon, designating types and proposing changes to the Code. The author has succeeded admirably in his aim and this small volume should be found on the desk of all practising taxonomists whatever stage of taxonomic life they are in.

There is a comprehensive review of this book by Maarten Christenhusz (2013).t

Reference

Christenhusz, M. (2013). *Botanical Journal of the Linnean Society* 173: 786–787. Accessed at <http://onlinelibrary.wiley.com/doi/10.1111/boj.12086/pdf>

The Natural History of Spencer Gulf. Editors: Scoresby Shepherd, Stephen Madigan, Bronwyn Gillanders, Sue Murray-Jones & David Wiltshire. Royal Society of South Australia. 2014. Price \$60. GST included. Post & handling \$14. Available through the Royal Society of South Australia via its website: www.adelaide.edu.au/rssa/

The Royal Society of South Australia has just released the latest volume in its Natural History series, *The Natural History of Spencer Gulf*.

The book looks at the Gulf's history, its physical characteristics, its oceanography, its plants, birds and animals, and the valuable commercial and recreational fisheries

that support our regional communities. It also considers the protected species that live in the Gulf such as whales, dolphins, seals, sharks, cuttlefish and seabirds.

Marine pollution, management and protection, climate change, fish population studies and industrial development are also discussed, along with the importance of the region's social fabric, and the social and economic challenges that arise from various human uses and exploitation.

The companion volume on the other gulf, *Natural History of Gulf St Vincent*, was published in 2008 and is also available from the Society for \$120. That volume was reviewed by Graham Edgar for the *Australian Marine Sciences Association Bulletin* (Web ref.)

And for those of you who might still want to know more about Spencer Gulf and its future there is also an online report by some of the same authors identifying amongst other things the gaps in knowledge.

Gillanders B.M. & 30 co-authors (2013) Spencer Gulf Ecosystem & Development Initiative. Report on Scenario development, Stakeholder workshops, Existing knowledge & Information gaps. Report for Spencer Gulf Ecosystem and Development Initiative. The University of Adelaide, Adelaide. 94 pages. http://www.adelaide.edu.au/environment/water/spencer-gulf/Spencer_Gulf_science_knowledge_review.pdf

Web ref. www.amsa.asn.au/pubs/bookreviews/shepherd2008.php?phpMyAdmin=JURm0KeEWJJMSj%2CxwbEH7zLK989



Book review

A forgotten visionary and environmentalist – Goyder of South Australia's Goyder's Line

Robyn Barker, State Herbarium of South Australia

Nature's Line. George Goyder, surveyor, environmentalist, visionary. By Janis Sheldrick. Wakefield Press: Adelaide. August 2013. 476 pp.; 235 x 160; 16 pp. colour illus. ISBN 9781862548251 (HB). Price \$45.00

Most South Australian's are very familiar with

the name George Goyder because of his association with Goyder's Line, the line drawn by him in 1865 to separate the arable and pastoral regions of the state based on the reliability of the rainfall. Northern Territorians will be familiar with him because he selected the land and laid out the town of Darwin (then known as Palmerston) where a number of previous attempts to form settlements had been unsuccessful.

This is a comprehensive account of this multifaceted man, who was Surveyor General of South Australia from 1861 to 1894. He did not come to Australia with this title but instead arrived in Melbourne in 1849 as a practical railway engineer – at a time when there were no railways in the land. In 1851 he travelled overland to Adelaide, just before the discovery of gold and probably at the same time as the Black Thursday bushfires (6th February 1851). He had a meteoric rise within the public service following his appointment as the chief clerk of the Land Office in 1853, second assistant surveyor general in 1854, first assistant in 1855, and in 1856 deputy assistant to the surveyor general. In 1857 he was credited as the first European explorer to see the inland salt lakes in flood and to see the transformation that followed.

By the 1870s Goyder was involved in so many of the decisions of the day he became a

universal Mr Fixit, advising on the drainage of the south-east, the establishment of a forestry industry and forest reserves, provision of water to towns and railway lines and later in life providing advice on how to reduce rabbit and wild dog numbers in the pastoral area. He sat on many boards and was a controversial figure

on most of them. After his earlier advocacy for Forest Reserves in the early 1870s he became the chair of the Forest Board and was involved in the selection of John Ednie Brown as the first South Australian Conservator of Forests. The two were at loggerheads from the beginning because Brown was of the belief, often expressed by English forestry officials of those times, that rain followed the plough.

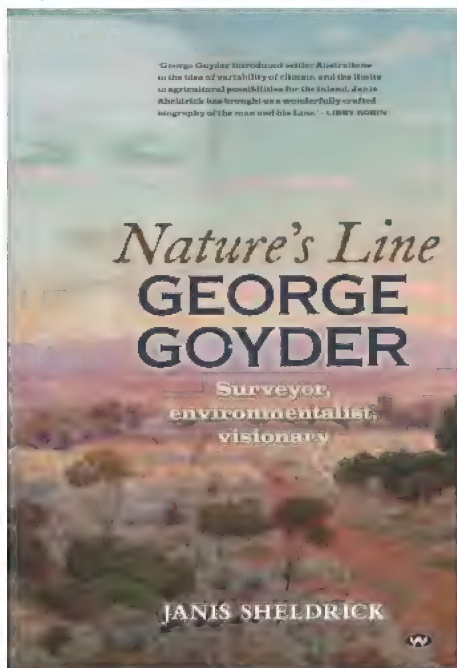
But there is so much more to this twice-married man and father of 12 surviving children who suffered ill-health but was never afraid to take on the government.

The scope of this book is incredible, and not just because of the subject. The author has painted a comprehensive portrait of South Australia and the Northern Territory of the time and this provides a wonderful backdrop to her larger-than-life subject.

While Goyder's name is still recognised today in *The Goyder Institute for Water Research*, a partnership between the South Australian Government, CSIRO, and the three south Australian universities, the author states (p. 380) that she was

... certainly surprised to realise how much that he had done had been forgotten and how little acknowledged he had been.

Janis Sheldrick has certainly redressed this in spades. The book is thoroughly recommended!



Food for thought

Foraging *Nicotiana glauca* – the fortunate and the fatal

Having written an item in *New Books on the Weed Forager's Handbook* (p. 27), and praised the authors' emphasis on getting the plants correctly identified, it was interesting to hear of a recent visit to the State Herbarium of South Australia prompted by someone who had been encouraged by a forager to try different plants. As a consequence she added some leaves from a seedling which had come up in her vegetable garden to her evening salad. She became very ill quite quickly and was admitted to hospital and treated for her symptoms which included nausea, dizziness and heart palpitations. There was apparently little interest in the possibility of poisoning from the plant which had been eaten, even though the victim thought that it was the probable cause. And it was the victim who visited the herbarium some days later with some leaves from the plant concerned. And what was it? *Nicotiana glauca*, a known and relatively well documented poison plant.

A simple on-line search reveals a list summarising a series of medical reports involving fatalities caused by *Nicotiana glauca* (Web ref. 1); it has the following wisdom:

We say it time and time again, "Do *not* eat any wild plant, *unless* you can 100% positively identify it [as] safe to eat".

The State Herbarium's honorary fungal expert, Pam Catcheside, each year makes the same appeal in the media about eating our bush fungi.

Foraging for plants, algae and fungi has become

the latest food fashion in some of our restaurants – it follows a long European and Aboriginal tradition (e.g. Web refs. 2, 3). With the organ of taste firmly in cheek, we hope doing homework is part of the experience; current knowledge of their anticipated delicacies may not always be adequate. Here is a case for the value of ongoing science and systematics.

References

Web ref. 1: <http://outdoorselfreliance.com/tree-tobacco-death-by-anabasine/>

Web ref. 2: www.theleadsouthaustralia.com.au/industries/primary-industries/adelaide-chefs-head-to-the-hills-to-forage-ingredients/

Web ref. 3: <http://restaurant.australia.com/explore/National/Experiences/foraging-australian-style.html>

Robyn and Bill Barker

New fungi found in commercial packet of porcini

Porcini is one of the most widely traded wild edible mushrooms in the world and they are large and conspicuous. China is a major exporter of porcini, most of it ending up in Europe. A recent DNA analysis of a commercial packet of dried Chinese porcini, purchased in London by botanists from the Mycology Section, Royal Botanic Gardens, Kew, revealed it to contain three never before described species. Even in this widely recognised and utilised group there is more diversity than expected.

Dentinger BT, Suz LM. (2014) What's for dinner? Undescribed species of porcini in a commercial packet. *PeerJ PrePrints* 2:e423v2. <http://dx.doi.org/10.7287/peerj.preprints.423v2>

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ASBS publications

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Australian Systematic Botany Society Newsletter No. 53

Systematic Status of Large Flowering Plant Genera

Edited by Helen Hewson, 1987

This Newsletter issue includes the reports from the February 1986 Boden Conference on the “Systematic Status of Large Flowering Plant Genera”. The reports cover: the genus concept; the role of cladistics in generic delimitation; geographic range and the genus concepts; the value of chemical characters, pollination syndromes, and breeding systems as generic determinants; and generic concepts in the Asteraceae, Chenopodiaceae, Epacridaceae, *Cassia*, *Acacia* and *Eucalyptus*.

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Evolution of the Flora and Fauna of Arid Australia (book)

Edited by W.R. Barker & P.J.M. Greenslade.

Peacock Publications, ASBS & ANZAAS, 1982

This collection of more than 40 papers will interest all people concerned with Australia's dry inland, or the evolutionary history of its flora and fauna. It is of value to those studying both arid lands and evolution in general. Six sections cover: ecological and historical background; ecological and reproductive adaptations in plants; vertebrate animals; invertebrate animals; individual plant groups; and concluding remarks.

Cost: \$20, plus \$10 postage (in Australia).

This book is almost out of print. There are a few remaining copies.

To order a copy of this book email Bill Barker at: bill.barker@sa.gov.au

History of Systematic Botany in Australasia (book)

Edited by P.S. Short. A4, case bound, 326 pp. ASBS, 1990

For all those people interested in the 1988 ASBS symposium in Melbourne, here are the proceedings. It is a well presented volume, containing 36 papers on: the botanical exploration of our region; the role of horticulturalists, collectors and artists in the early documentation of the flora; the renowned (Mueller, Cunningham), and those whose contribution is sometimes overlooked (Buchanan, Wilhelmi).

Cost: \$10, plus \$10 postage (in Australia)

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Only a few copies left!

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The deadline for contributions is the last day of February, May, August and November. All items incorporated in the Newsletter will be duly acknowledged. Authors alone are responsible for the views expressed, and statements made by the authors do not necessarily represent the views of the Australasian Systematic Botany Society Inc.

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